

**Amendment to the Claims:**

1. (Previously Presented) A method for controlling a drive motor of a positive displacement vacuum pump, the method comprising:

storing a continuous curve indicating a respective speed  $n$  of the drive motor for inlet pressure values  $p$ , the curve comprising:

an upper range for inlet pressure values  $p$  larger than or equal to an upper limit pressure  $p_1$ , a single constant upper speed value  $n_1$  being associated with said upper range, and

an alteration range for inlet pressure values  $p$  smaller than the upper limit pressure  $p_1$ , at least below the upper limit pressure, each inlet pressure value  $p$  being associated with a corresponding speed value  $n$ ;

determining the inlet pressure value  $p$ ;

determining from the curve, the speed  $n$  associated with the determined inlet pressure value  $p$  in the curve; and

operating the drive motor at the determined speed  $n$ , the determined speed value  $n$  being less than or equal to the upper speed value  $n_1$ .

2. (Previously Presented) The method according to claim 1, wherein the curve comprises a lower range for inlet pressure values  $p$  smaller than or equal to a lower limit pressure  $p_2$ , a single constant lower speed value  $n_2$  being associated with the lower range, and the alteration range being limited to inlet pressure values  $p$  larger than the lower limit pressure  $p_2$ , the upper speed value  $n_1$  being larger than the lower speed value  $n_2$ .

3. (Previously Presented) A method for controlling a drive motor of a positive displacement vacuum pump, the method comprising:

storing a continuous curve indicating a respective speed  $n$  of the drive motor for each inlet pressure value  $p$ , the curve comprising:

a lower range for inlet pressure values  $p$  smaller than or equal to a lower limit pressure  $p_2$ , a single constant lower speed value  $n_2$  being associated with said lower range,

an alteration range for inlet pressure values  $p$  larger than the lower limit pressure  $p_2$ , each inlet pressure value  $p$  being associated with a corresponding speed value  $n$  for pressures above the lower limit pressure  $p_2$ ;

determining the inlet pressure value  $p$ ;

determining from the curve the speed  $n$  associated with the determined inlet pressure value  $p$  in the curve; and

operating the drive motor at the determined speed  $n$ , the speed  $n$  being equal to or greater than the lower speed value  $n_2$ .

4. (Previously Presented) The method according to claim 1, wherein the speed  $n$  decreases as the corresponding inlet pressure  $p$  decreases in the alteration range.

5. (Previously Presented) The method according to claim 2, wherein the upper limit value  $p_1$  ranges between 20 mbar and 1 mbar, and the lower limit value  $p_2$  ranges between 1.0 mbar and 0.005 mbar.

6. (Previously Presented) The method according to claim 2, wherein the upper constant speed value  $n_1$  ranges between 2,200 and 1,000 rpm, and the lower constant speed value  $n_2$  ranges between 300 and 1,300 rpm.

7. (Previously Presented) The method according to claim 1, wherein the positive displacement vacuum pump is a fore vacuum pump arranged upstream of a high vacuum pump, and the inlet pressure  $p$  is a suction-side pressure of the high vacuum pump.

8. (Previously Presented) The method according to claim 1, wherein the curve is saved in a characteristic diagram storage.

9. (Previously Presented) The method according to claim 1, wherein the drive motor is an asynchronous motor.

10-11. (Cancelled)

12. (Previously Presented) The method according to claim 3, wherein in the alteration range, each value of decreasing inlet pressure  $p$  is associated with a corresponding decreasing speed value  $n$ .

13. (Previously Presented) The method according to claim 3, wherein the positive displacement vacuum pump is a fore vacuum pump arranged upstream of a high vacuum pump, and the inlet pressure  $p$  is a suction-side pressure of the high vacuum pump.

14. (Previously Presented) The method according to claim 3, wherein the curve is saved in a characteristic diagram storage.

15. (Previously Presented) The method according to claim 3, wherein the drive motor is an asynchronous motor.

16. (Cancelled)

17. (Currently Amended) A positive displacement vacuum pump system comprising:

a vacuum pump;

a drive motor which drives a rotor of the vacuum pump at an adjustable drive speed  $n$ ;

an inlet pressure sensor that senses an inlet pressure  $p$  at an inlet of the vacuum pump;

a memory which stores a preselected relationship between the inlet pressure  $p$  and the drive speed  $n$ , in which relationship ~~[[each]]~~ the inlet pressure  $p$  ~~[[in (a)]]~~ has an alteration range of operating pressures below an upper-pressure limit  $p_1$  and/or above a lower limit pressure  $p_2$ , where each value of the inlet pressure  $p$  has a preselected corresponding drive speed  $n$ , ~~[[and]]~~

in said preselected relationship, the inlet pressure  $p$  additionally has at least one of ~~[[ (b) ]]~~ an upper range of operating pressures larger than or equal to the upper pressure limit  $p_1$  and a lower range of operating pressures equal to or less than the lower pressure limit  $p_2$ , where:

every inlet pressure  $p$  in the upper range has a single constant upper speed  $n_1$ ~~being associated with the upper range, and~~

~~[[ (c) a]]~~ every inlet pressure  $p$  in the lower range equal to or less than the lower pressure limit  $p_2$ ~~, has a single constant lower speed  $n_2$  being associated with a lower range; and~~

said system also includes a drive motor control which (1) determines a currently sensed inlet pressure  $p$  from the inlet pressure sensor, (2) determines a corresponding drive speed  $n$  corresponding to the current inlet pressure from the relationship stored in the memory, and (3) controls the drive motor to rotate the rotor at the determined corresponding drive speed  $n$ , the determined drive speed  $n$  being less than or equal to the upper speed value  $n_1$  and greater than or equal to the lower speed value  $n_2$ .

18-19. (Cancelled)

20. (Previously Presented) The positive displacement pump system according to claim 17, wherein the relationship between the inlet pressure  $p$  and the drive speed  $n$  is a continuous curve.